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# ENVIRONMENTAL ISSUES IN ALBERTA:

# THE OPINIONS OF EDMONTON RESIDENTS, 1983

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# ENVIRONMENTAL ISSUES IN ALBERTA:

# THE OPINIONS OF EDMONTON RESIDENTS, 1983

by

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for

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Alberta Environment

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## ABSTRACT

The Population Research Laboratory, Department of Sociology, University of Alberta, conducts annual surveys of randomly-selected samples of adult residents of Edmonton. Quality of life issues are central concerns in these studies.

Comparisons of 1982 and 1983 Edmonton survey data allowed an examination of public opinion about environmental issues before and after the Lodgepole gas well blowout. This industrial accident may have further sensitized Edmonton residents to ecological concerns since support for strict enforcement of air quality regulations was even more pronounced in 1983 than a year earlier.

As in 1982, air quality, and control of chemicals or waste were the issues considered most serious by sample members. Again, air quality was most likely to personally affect individuals interviewed in the Edmonton Area Study.

A large majority believed that government alone or government and industry should be responsible for dealing with air pollution problems. The percentage believing industry alone should deal with such problems decreased between 1982 and 1983. A very large majority insisted that air quality regulations should be enforced and over 60% recommended strict methods of enforcement such as fines, heavy fines, imprisonment, or plant closures.

The 1983 survey revealed almost unanimous agreement that polluting industries should be prosecuted. Even when a variety of conditions such as higher costs, higher taxes, and loss of jobs were attached to the question about prosecution, strong support remained for such a policy. In 1982, some groups less likely to support such strict enforcement measures could be identified. By 1983, support for a tough policy of air quality regulation enforcement was more widespread and more evenly distributed across sample members.

## ACKNOWLEDGEMENTS

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## 1. INTRODUCTION

Concerns about environmental protection and restoration have become more pronounced and widespread over the past decade. The increase in ecological consciousness can be attributed to two interrelated factors: the accumulating evidence of environmental damage accompanying industrial development, and the efforts of schools and the various news media to educate the public. Reliable information on public opinion about such issues can be useful to legislators and environmental protection agencies. This report discusses the environmental concerns and opinions of residents of the city of Edmonton.

On 1982 October 17, a sour gas well blew out of control near the small town of Lodgepole, southwest of Edmonton. Before the well was eventually capped a few months later, several workers had been killed and over a dozen had been hospitalized. But the consequences of this industrial accident were much more widely dispersed. People all over the province reported feeling ill effects of continuous exposure to hydrogen sulphide gas.

The 1983 Edmonton Area Study which provides much of the data for this study of public opinion was undertaken soon after, in February and March 1983. Individuals interviewed in the study were asked a number of questions about environmental issues. Since this survey was one of an annual series, comparable data are available from 1982. Thus we can look at changes over time in public opinion about environmental issues, and speculate about the effects of a major air pollution incident on the public's opinion about environmental issues.

The Population Research Laboratory, Department of Sociology, University of Alberta, conducts these annual surveys. Each year a sample of several hundred city households is randomly selected. An attempt is then made to interview one adult in each of these households. Final sample sizes for the last few years have been 420 (1983), 507 (1982), and 400 (1981). The one-hour long, structured interviews focus on a wide range of subjects including, in the last few surveys, environmental issues and the regulation and control of air pollution. A

previous report (Krahn 1982b) discussed the responses to these particular questions elicited from Edmonton residents in 1980, 1981, and 1982, as well as from Winnipeg residents interviewed in a parallel 1981 study. The present report focuses primarily on the 1982 and 1983 survey results, although a brief summary of the earlier report follows.

## 2. SUMMARY OF PREVIOUS FINDINGS

Conservation of resources and control of chemicals and waste were identified by 1981 Edmonton residents as the most serious environmental issues facing Alberta. By 1982, a decline in world oil prices may have led to a shift away from concerns about energy conservation. The 1982 survey respondents were more likely to be concerned about air and water quality. Air quality was also reported to be the environmental issue most affecting them personally.

Analyses of 1981 Edmonton Area Study data showed that about one half of the respondents reported doing nothing about the environmental problem most affecting them personally. Some individuals had tried to conserve energy or to inform themselves about environmental issues, but most seemed to think they could do little personally about serious environmental problems. A majority of Edmonton residents interviewed in 1982 believed that government should be responsible for dealing with air pollution problems, particularly through the strict enforcement of air quality regulations. Younger, more educated respondents, and those with higher status occupations were considerably more likely to favour strict enforcement of pollution control regulations. Almost 90% stated that polluting industries should be prosecuted. Although the percentage in favour of prosecution dropped when certain consequences were added to the question (e.g., higher taxes, loss of jobs), strong support remained for a policy of prosecuting offending industries.

In short, this earlier report showed air and water quality, and chemical/waste control to be important environmental issues for Edmonton residents. Respondents were generally in agreement that the government should be dealing with air pollution problems, that air quality regulations should be enforced, and that prosecution of polluting industries was appropriate. The following discussion of 1983 survey results allows a pre- and post-Lodgepole comparison of public opinion about environmental problems in Alberta.

## 3. 1983 SURVEY RESULTS

### 3.1 MOST IMPORTANT ENVIRONMENTAL ISSUES

Question: In your opinion, what are the three most important environmental issues facing Alberta today? (Rank Three)

Unlike the remaining tables which contain only 1982 to 1983 comparisons, Table 1 presents results from 1981 through 1983 since the general question above was asked in three consecutive surveys. Respondents were provided with a list of thirteen possible answers and asked to choose the three issues they believed to be most important. Since environmental issues which are frequently ranked first may receive few second and third place designations, and vice versa, some form of weighting is necessary to allow comparisons of their relative importance to sample members. Hence, a score of three was given if a particular issue was ranked most important, and scores of two and one were assigned for second and third most important, respectively. In other words, if 20 people ranked Problem A as most serious while 60 people believed Problem B to be the third most important, the two would be treated as equally important to sample members.

Air quality (17.9%), water quality (17.0%), and control of chemicals and waste (16.5%) remained the issues considered most serious by 1983 sample members (Table 1). While the percentage changes are not large, all three concerns appeared somewhat more widespread in 1983 than in 1982. Conservation of resources (10.5%) and increasing public awareness about environmental issues (9.3%) again formed a second group of important ecological concerns. The remaining eight issues were considered to be relatively less important by Edmonton residents interviewed in all three surveys.

Table 1. Environmental issues facing Alberta ranked by importance to respondents.

| | 1983 | | 1982 | | 1981 | |
|---|---|---|---|---|---|---|
| | Rank | %[a] | Rank | % | Rank | % |
| Air quality (smell, visible pollution, safety) | 1 | 17.9 | 1 | 17.0 | 4 | 9.8 |
| Water quality (taste, smell, safe supply) | 2 | 17.2 | 2 | 15.9 | 5 | 9.4 |
| Control of chemicals or waste | 3 | 16.5 | 3 | 14.9 | 2 | 16.4 |
| Public values, attitudes, awareness | 4 | 10.5 | 5 | 8.0 | 3 | 10.4 |
| Conservation of resources (e.g., energy) | 5 | 9.3 | 4 | 9.0 | 1 | 17.2 |
| Improper land use | 6 | 5.5 | 6 | 5.8 | 7 | 6.6 |
| Failure of government legislation | 7 | 4.8 | 11 | 3.7 | 10 | 3.1 |
| Too much government legislation | 8 | 4.3 | 10 | 3.8 | 8 | 5.0 |
| Wildlife protection | 9 | 3.7 | 9 | 4.0 | 9 | 3.5 |
| Control of growth (urban, industrial) | 10 | 3.4 | 7 | 5.5 | 6 | 6.8 |
| Restoring spoiled lands | 11 | 2.0 | 13 | 1.4 | 13 | 1.2 |
| Litter control and beautification | 12 | 1.9 | 12 | 3.0 | 11 | 2.7 |
| Noise | 13 | 1.3 | 8 | 4.2 | 12 | 2.5 |
| Other/nothing/DK/NR | - | 1.7 | - | 3.8 | - | 5.4 |

[a] Percentages are based on the sum of "importance scores" calculated by assigning a value of three for most important, two for second most important, and one for third most important environmental issue facing Alberta.

Question: Which issue on the page most affects you?[1]

After answering the first general question, sample members were then asked to state which of the issues on the list most affected them personally. As in the 1982 study, air quality was identified most frequently (by 19.8% of all respondents in 1983 and 21.1% a year earlier) Water quality was considered to be the most immediate issue for about 13% of the sample in both studies. In 1983, 15.5% of the sample chose the "public values, attitudes, awareness" response, while 11% answered in this manner in the 1982 study.

In brief, Edmonton residents continued to believe that air quality, water quality, and chemical/waste control are the most important environmental issues facing Alberta and that air quality is the issue most affecting them personally. But although the 1982 and 1983 studies were separated by a major air pollution incident near Edmonton, the relative importance assigned to air quality in answers to these two questions did not really increase.

## 3.2 CONTROL AND REGULATION OF AIR POLLUTION

Question: If control of air pollution from oil sands and chemical processing, coal, and power plants becomes a problem in Alberta, who do you think should be most responsible for dealing with this problem?

Although no important changes were found in the responses to the previous two questions, there was a shift in opinion about who should be most responsible for dealing with air pollution problems (Table 2). In 1982, one third of the sample members suggested that industry itself should be responsible, while about two thirds identified some level of government as the appropriate responsible agency. A year later, the 33.5% of those believing that industry should be responsible had shrunk to 20.2%, while those identifying government alone had been reduced from 59.3% to 47.5%. Alternatively, 24.5% reported in 1983 that government and industry together should be responsible, compared to only 1.6% a year earlier.

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[1] Data not shown.

Table 2. Who should be most responsible for dealing with air pollution?

| | 1983 | | | 1982 | | |
|---|---|---|---|---|---|---|
| | n | % | | n | % | |
| Alberta government | 133 | 31.7 | | 178 | 35.1 | |
| Federal government | 8 | 1.9 | 47.5 | 22 | 4.3 | 59.3 |
| Alberta and federal government | 51 | 12.2 | | 97 | 19.1 | |
| Local municipalities (cities) | 7 | 1.7 | | 4 | 0.8 | |
| Industry and government | 103 | 24.5 | | 8 | 1.6 | |
| Industry itself | 85 | 20.2 | | 170 | 33.5 | |
| Public, citizens | 20 | 4.7 | | 15 | 3.0 | |
| Other/DK | 13 | 3.1 | | 13 | 2.6 | |
| Total | 420 | 100.0 | | 507 | 100.0 | |

Although almost one half of the sample members (47.5%) still suggested in 1983 that government should be most responsible, there was a reduction in the proportion of Edmonton residents who felt confident that either industry or government alone could deal with air pollution problems (Table 2). The manner in which both of these parties dealt with the Lodgepole sour gas incident may have influenced these changes. Further, more detailed questions would be necessary to determine exactly how citizens would like government and industry to deal with air pollution problems. But it is apparent that in 1983 a substantial minority (24.5%) believed that the two sectors must work together in some manner. It is also apparent, as examination of responses to the next question shows, that such an approach should not be one of the de-regulation of industry. In fact, the opposite appears to be the case.

Question: How should this air pollution problem be dealt with? That is, which way do you most prefer?

As in 1982, only a small minority of 1983 sample members would prefer that industry police itself (11.9%), and even fewer emphasized citizen action (5.2%) as a preferred method of dealing with air pollution problems (Table 3). A few respondents believed that setting safety standards was an appropriate tactic (4.3%). But over three quarters of these Edmonton residents (76%) chose responses to this question which emphasized enforcement of safety standards, an increase from 72.2% a year earlier.

It is very evident that public opinion favoured strict enforcement of air quality regulations (Table 3). Thirty per cent of the sample members would prefer to see heavy fines, while an additional 10.5% chose the "imprisonment" response to this question. Plant closures were recommended by 15.3% of the sample members. The combination of these methods of strict enforcement (fines, heavy fines, imprisonment, plant closures) accounted for 62.2% of the sample, compared to 57.8% in 1982. These data demonstrate that a large majority of Edmonton residents see government's role in air quality protection as

Table 3. Preferred method of dealing with air pollution.

| | 1983 | | | 1982 | | |
|---|---|---|---|---|---|---|
| | n | % | | n | % | |
| Citizen action (complaints, meetings, petitions, etc. | 22 | 5.2 | | 31 | 6.1 | |
| Industry policing (monitoring) itself | 50 | 11.9 | | 55 | 10.8 | |
| Setting safety standards | 18 | 4.3 | | 37 | 7.3 | |
| Enforcing safety standards | 58 | 13.8 | | 73 | 14.4 | |
| Enforcing safety standards with fines | 24 | 5.7 | 62.2 | 30 | 5.9 | 57.8 |
| Enforcing safety standards with heavy fines | 129 | 30.7 | | 154 | 30.4 | |
| Enforcing safety standards with imprisonment | 44 | 10.5 | | 36 | 7.1 | |
| Closing down the plant | 64[a] | 15.3 | | 73 | 14.1 | |
| Other/DK | 11 | 2.6 | 76.0 | 18 | 3.6 | 72.2 |
| Total | 420 | 100.0 | | 507 | 100.0 | |

[a] Includes three individuals who answered "all of the above."

an active one, involving strict enforcement of regulations. The pre- and post-Lodgepole comparison also showed an increased consensus on this issue.

## 3.3 PROSECUTION OF POLLUTING INDUSTRIES

Question: Do you think that industries which exceed air pollution standards should be prosecuted?

When respondents in the 1983 survey were placed into an either-or situation, almost all of them (93.1%) agreed that polluting industries should be prosecuted (Table 4). Again, there was an increased consensus, as 88.2% answered "yes" to this question a year earlier. It is difficult to ignore the mandate which this survey provides to legislators and environmental protection agencies. In response to a very direct question, there was almost unanimous agreement that air quality regulations should be enforced through the prosecution of industries which break them.

Question: Would you still favour prosecution if it resulted in any one of the following?

As noted in the preceding report (Krahn 1982b), it is possible that prosecution of polluting industries might have consequences costly to Albertans. In both the 1982 and 1983 Edmonton Area Studies, some possible consequences were suggested to sample members in conjunction with the question about prosecution of polluting industries. Table 5 displays the percentage of the total sample favouring prosecution, under specific conditions, in both 1982 and 1983.

The preceding question focused on oil and chemical processing, and coal and power plants. If the products of these plants increased in price as a consequence of prosecution for air quality regulation enfractions, 79.3% of the 1983 sample members would still favour prosecution. If prosecution forced sample members to convert their home heating to another fuel, three quarters (74.8%) of the respondents would still favour such an action. Around 60% of the total sample remained in

Table 4. Level of support for prosecution of polluting industries.

Do you think that industries which exceed air pollution standards should be prosecuted?

| | 1983 | | 1982 | |
|---|---|---|---|---|
| | n | % | n | % |
| Yes | 391 | 93.1 | 447 | 88.2 |
| No | 19 | 4.5 | 35 | 6.9 |
| DK | 10 | 2.4 | 25 | 4.9 |
| Total | 420 | 100.0 | 507 | 100.0 |

Table 5. Support for prosecution of polluting industries under specific conditions.

Would you still favour prosecution if it resulted in any one of the following?

| | Respondents answering "yes" | | | |
|---|---|---|---|---|
| | 1983 | | 1982 | |
| | n | % | n | % |
| Higher prices for these commodities | 333 | 79.3 | 356 | 70.2 |
| Conversion of home heating to another fuel | 314 | 74.8 | 342 | 67.5 |
| Higher taxes | 260 | 61.9 | 281 | 55.4 |
| Lower standard of living | 253 | 60.2 | 290 | 57.2 |
| Loss of jobs | 245 | 58.3 | 278 | 54.8 |
| Loss of <u>your</u> job | 194 | 46.2 | 232 | 45.8 |

[a] In both the 1982 and 1983 surveys, the question was asked only of those respondents who answered "yes" to the preceding question (Table 4). However, the percentages presented here use the total sample as a base since it is assumed that those answering "no" or "don't know" to the preceding general question would also have responded negatively to these more specific questions.

favour of prosecution under the following conditions: higher taxes, a lower standard of living, and loss of jobs. Even under the most severe condition--the loss of one's own job--almost one half (46.2%) of the respondents would still favour prosecution of polluting industries.

The 1982-1983 comparisons of the preferred method of dealing with air pollution (Table 5) show that support for a policy of prosecution increased for all of the conditions specified. The largest increases (between 6% and 9%) were found for the less severe conditions (higher prices and taxes, conversion of home heating). Smaller increases were shown for the loss of jobs and reduced standard of living conditions, while the increase for the last condition (loss of one's own job) was really too small to emphasize. Overall, however, we can conclude that there was a shift in public opinion over the year during which the Lodgepole sour gas incident occurred. Edmonton residents were more likely to favour prosecution than they were a year earlier under almost all conditions. While a non-experimental form of research such as this cannot prove a causal connection, it is certainly probable that the gas well blowout influenced public opinion.

The interpretation given to the varying levels of agreement with a policy of strict air quality regulations remains unchanged. As was suggested in the preceding report (Krahn 1982b.13-14), these are hypothetical conditions. The prosecution of polluting industries might lead to higher taxes and higher prices. It might, in isolated circumstances, result in a plant closure but the probability of personal job loss, for any individual Alberta, is extremely low. Thus, varying levels of support for prosecution do not inform us about the actual consequences of such a policy. What the decreasing percentages in Table 5 show us is that individuals evaluate environmental problems and solutions in terms of personal consequences. If few widespread costs to individuals would result from a policy of prosecution, which is the most likely case, very strong support for such a policy would remain.

## 3.4 GROUPS MOST IN FAVOUR OF STRICT REGULATION

The data presented in Table 3 show the continuing support for a policy of enforcement of air quality regulations. Over 60% of the 1983 sample, up almost 5% from a year earlier, favoured strict methods of enforcement (fines, heavy fines, imprisonment, plant closures). Analysis of the 1982 survey data revealed that younger, more educated respondents and those with higher status occupations were most likely to favour such strict methods (Krahn 1982b:19). Table 6 re-presents these findings as well as providing a similar examination of the 1983 survey data.

In both surveys, younger respondents were generally more likely to advocate a strict enforcement policy. However, the increased support for such a policy in 1983 appears to have come primarily from the youngest sample members (under thirty years of age), over 70% of whom favoured such methods, compared to around 60% in 1982. Similarly, the oldest sample members (over sixty years of age) were in 1983 somewhat more likely to support strict enforcement methods (an increase from 44.8% to 53.2%). Support for such a policy was about the same or a little less widespread in 1983 than a year earlier among the middle age groups.

In 1982, higher education was associated with more support for strict methods of air quality enforcement. The percentage in favour increased systematically from 47.7% for those with only a grade school education to 65.2% for those with four or more years of post-secondary education. By 1983, this pattern was much less pronounced (and not statistically significant). A year earlier, those in low status clerical/sales/service occupations were least likely to favour such a policy (51.8%). Again, by 1983 the pattern had been altered, with the highest level of support (65.4%) coming from this group (although the differences between groups were not statistically significant).

In short, considering the total sample, support for a strict enforcement policy was more widespread in 1983 than in 1982 (Table 3). In addition, differences across population sub-groups were less pronounced than they had been prior to the Lodgepole gas well blowout

Table 6. Preferred method of dealing with air pollution.

| | | Per cent favouring strict methods[a] | |
|---|---|---|---|
| | | 1983 | 1982 |
| Age (years) | ≤ 24 | 71.8* | 58.5* |
| | 25 to 29 | 75.6 | 62.5 |
| | 30 to 39 | 59.3 | 65.8 |
| | 40 to 49 | 58.6 | 61.2 |
| | 50 to 59 | 46.0 | 46.0 |
| | ≥ 60 | 53.2 | 44.8 |
| Education (years) | ≤ 8 | 54.8 | 47.7* |
| | 9 to 11 | 64.0 | 49.4 |
| | 12 | 63.6 | 50.0 |
| | 13 to 15 | 62.9 | 65.2 |
| | ≥ 16 | 60.5 | 65.2 |
| Occupation | Managerial/ professional | 61.8 | 66.9* |
| | Clerical/sales/ services | 65.4 | 51.0 |
| | Other[b] | 58.6 | 57.7 |
| Health satisfaction[c] | Dissatisfied | 56.3 | 53.4 |
| | Satisfied | 63.9 | 58.7 |
| Total | | 62.2 | 57.8 |

[a] Strict methods include fines, heavy fines, imprisonment, and plant closures. They exclude citizen actions, industry self-policing, setting safety standards, enforcing standards, other methods, and DK (see Table 3).

[b] Construction, manufacturing, transportation, keeping house, etc.

[c] Respondents were asked to evaluate their satisfaction with their health on a scale of "very dissatisfied (1) to (7) very satisfied." For this table, scores of 1 to 4 represent dissatisfaction, while scores of 5 to 7 represent satisfaction with health.

* Differences were statistically significant ($p < .05$).

(Table 6). Those less environmentally conscious in 1982 (the very young and the elderly, the less educated, and those in low status occupations) may have been influenced by this incident. In other words, in 1982 some population sub-groups appeared less environmentally aware than did others. By 1983, such differences were harder to detect. Ecological concerns were generally more widespread. Again, a comparison such as this cannot demonstrate causal relationships, but the Lodgepole incident seems to be a very likely cause of the change in public opinion.

Further examinations (results not shown) of the effects of gender, marital status, household size, home ownership and house type, neighbourhood satisfaction and neighbourhood integration, employment status, income, and length of residence in Edmonton showed no statistically significant differences across groups. Generally, support for strict enforcement measures was widespread and evenly distributed. Table 6 also contains results of one further analysis. In both surveys, those dissatisfied with their physical health were less likely to advocate strict methods of enforcement of air quality regulations. This indirectly refutes the argument that high levels of concern about air pollution and its effects are a function of the inflated fears of those overly concerned about their health.

## 4. SUMMARY OF FINDINGS

Comparison of 1982 and 1983 Edmonton survey data allowed an examination of public opinion about environmental issues before and after the Lodgepole gas well blowout. In both studies, air quality, water quality, and control of chemicals or waste, in that order, were the environmental issues considered most serious by sample members. In both studies, air quality was also the most likely to personally affect sample members.

While about one half of the 1983 sample members still believed that government alone should be responsible for dealing with air pollution problems, this group and those believing that industry alone should be most responsible shrank between 1982 and 1983. About 25% now suggested that government and industry should both be addressing such problems. Even more than in 1982, Edmonton residents insisted that air quality regulations should be strictly enforced. Over 60% recommended fines, heavy fines, imprisonment, or plant closures.

The individuals interviewed in 1983 also gave an extremely strong mandate to those responsible for air quality regulation enforcement. Ninety-nine per cent stated that polluting industries should be prosecuted, compared to 88% a year earlier. The percentage in favour of such a policy decreased when various conditions (e.g., loss of jobs, higher taxes) were attached to the question but, overall, support for tough measures remained strong. Even under the hypothetical condition of personal job loss, almost one half of the respondents said they would still be in favour of prosecution of a polluting industry.

In 1982, some identifiable sub-groups were more likely to favour strict methods of enforcement of air quality regulations. By 1983, differences across education and occupation sub-groups were no longer significant and the age differences in support of strict enforcement measures were not as pronounced. It appears as if exposure to the Lodgepole accident may have further sensitized Edmonton residents to environmental issues since support for strict enforcement policies was both more widespread and more evenly distributed in 1983 than it had been a year earlier.

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